

***Amendments to the Claims***

The listing of claims will replace all prior versions, and listings of claims in the application.

**Claims 1-93. (Canceled)**

Claim 94. (Previously Presented) A vaccine comprising an isolated recombinant PMPE polypeptide comprising a polypeptide encoded by a nucleic acid molecule comprising the nucleotide sequence of SEQ ID No.: 1 fused to a nucleic acid molecule encoding a histidine affinity ((H)<sub>6</sub>) domain.

Claim 95. (Previously Presented) A vaccine comprising an isolated recombinant PMPE polypeptide comprising the amino sequence of SEQ ID No.: 2 fused to an amino acid sequence comprising a histidine affinity ((H)<sub>6</sub>) domain.

**Claims 96-98. (Canceled)**

Claim 99. (Previously Presented) The vaccine of claim 94 or 95, further comprising one or more adjuvants or immunostimulatory compounds.

Claim 100. (Previously Presented) The vaccine of claim 94 or 95, wherein the one or more adjuvants or immunostimulatory compounds are selected from the group consisting of alum, MLT, QS21, MF59, CpG DNA, PML, calcium phosphate and PLG.

Claim 101. (Previously Presented) The vaccine of claim 94 or 95, comprising one adjuvant or immunostimulatory compound.

Claim 102. (Previously Presented) The vaccine of claim 94 or 95, comprising two different adjuvants or immunostimulatory compounds.

Claim 103. (Previously Presented) The vaccine of claim 94 or 95, additionally comprising one or more immunogens selected from the group consisting of a lipid,

lipoprotein, phospholipid, lipooligosaccharide, protein, attenuated organism and inactivated whole cell.

Claim 104. (Canceled)

Claim 105. (Previously Presented) The vaccine of claim 103, wherein the additional immunogen is another protein of *Chlamydia*.

Claim 106. (Previously Presented) The vaccine of claim 103, wherein the additional immunogen is HMW (High Molecular Weight) protein of *Chlamydia trachomatis*.

Claim 107. (Currently Amended) A vaccine comprising[: ]]  
an isolated polypeptide comprising the mature putative membrane protein E  
~~(PMPE) (pmpE) encoded by - of a *Chlamydia* spp. comprising an amino acid sequence of~~  
SEQ ID No.: 2; and  
a carrier;  
wherein an effective amount of said vaccine administered to female mice reduces  
*Chlamydia trachomatis*-induced infertility.

Claims 108 - 130. (Canceled)

Claim 131. (New) The vaccine of claim 107, wherein said isolated polypeptide is encoded by a nucleic acid comprising SEQ ID NO: 1.

Claim 132. (New) The vaccine of claim 107, wherein said isolated polypeptide further comprises one or more heterologous polypeptides.

Claim 133. (New) The vaccine of claim 107, wherein said one or more heterologous polypeptides are selected from the group consisting of a pre or pro-sequence, an affinity purification sequence, and an immunogenic sequence.

Claim 134. (New) The vaccine of claim 133, wherein said immunogenic sequence is selected from the group consisting of Hin47, the *Chlamydia* high molecular weight (HMW) protein or a fragment thereof, and the *Chlamydia* major outer membrane protein (MOMP) or a fragment thereof.

Claim 135. (New) The vaccine of claims 107, further comprising one or more adjuvants.

Claim 136. (New) The vaccine of claim 135, wherein said one or more adjuvants are selected from the group consisting of alum, mLT, LTR192G, QS21, Ribi DETOX™, MMPL, CpG DNA, MF59, calcium phosphate, and PLG.

Claim 137. (New) The vaccine of claim 107, wherein said polypeptide is conjugated to one or more targeting molecules.

Claim 138. (New) The vaccine of claim 137, wherein said one or more targeting molecules are selected from the group consisting of vitamin B12, a bacterial toxin or fragment thereof, a monoclonal antibody, a lipid, a protein, a nucleic acid, and a carbohydrate.

Claim 139. (New) A vaccine comprising:  
an isolated polypeptide comprising the putative membrane protein E (pmpE) encoded by the *Chlamydia* insert in plasmid M15pREP (pQE-pmpE Ct)#37 deposited under ATCC Accession No. PTA-2462; and  
a carrier;

wherein an effective amount of said vaccine administered to female mice reduces *Chlamydia trachomatis*-induced infertility.

Claim 140. (New) The vaccine of claim 139, wherein said isolated polypeptide further comprises one or more heterologous polypeptides.

Claim 141. (New) The vaccine of claim 140, wherein one or more heterologous polypeptides are selected from the group consisting of a pre or pro sequence, an affinity purification sequence, and an immunogenic sequence.

Claim 142. (New) The vaccine of claim 141, wherein said immunogenic sequence is selected from the group consisting of Hin47, the *Chlamydia* high molecular weight (HMW) protein or a fragment thereof, and the *Chlamydia* major outer membrane protein (MOMP) or a fragment thereof.

Claim 143. (New) The vaccine of claim 139, further comprising one or more adjuvants.

Claim 144. (New) The vaccine of claim 143, wherein said one or more adjuvants are selected from the group consisting of alum, mLT, LTR192G, QS21, Ribi DETOX™, MMPL, CpG DNA, MF59, calcium phosphate, and PLG.

Claim 145. (New) The vaccine of claim 139, wherein said polypeptide is conjugated to one or more targeting molecules.

Claim 146. (New) The vaccine of claim 145, wherein said one or more targeting molecules are selected from the group consisting of vitamin B12, a bacterial toxin or fragment thereof, a monoclonal antibody, a lipid, a protein, a nucleic acid, and a carbohydrate.